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ABSTRACT

This study examined relations between internalization of conduct rules and the temperamental quality of inhibitory control in 103 children followed from toddlerhood to early school age; and used recent methodological suggestions to obtain better estimates of stability to examine longitudinal continuity of internalization. Maternal reports of children's inhibitory control were collected at ages 2.5, 4, and 6 years using the Child Behavior Questionnaire. Children's internalization was observed at ages 4, 5, and 6 years in 3-minute videotaped game-playing situations that provided the children an opportunity to violate (cheating at a game) or comply with rules while unsupervised. An overall internalization composite score for each time of assessment was comprised of three composite scores: (1) mean latency to transgress; (2) mean extent of transgression; and (3) mean extent of rule-compatible behavior. Results indicated that inhibitory control at age 2.5 predicted internalization when children were 4 years old, but not when they were 5 and 6 years old. Inhibitory control, however, was associated with internalization concurrently at ages 4 and 6 years. Internalization was modestly stable across times of assessment. (Contains 16 references.) (Author/KB)

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Development of Internalization from Age 2 To 6: Longitudinal Stability and Links with Temperament.

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Abstract

The goals for this investigation were two-fold. First, this study examined relations between internalization and the temperamental quality of inhibitory control in a group of 103 children followed from toddlerhood to early school age. Second, taking into account recent methodological suggestions to obtain better estimates of stability, we revisited the issue of longitudinal continuity of internalization. Maternal reports of children's inhibitory control were collected at ages 2 1/2, 4, and 6 years. Children's internalization was observed at ages 4, 5, and 6 years in situations that provided them an opportunity to violate or comply with rules while unsupervised. Inhibitory control at age 2 1/2 predicted internalization when the children were 4 years old, but not when they were 5 and 6. Inhibitory control, however, was associated with internalization concurrently at ages 4 and 6. Internalization was modestly stable across times of assessment.

Introduction

Moral internalization is a classic topic that has reemerged in contemporary investigations and has stimulated a renewed interest in factors that contribute to different developmental outcomes of the internalization process. Despite a long history, these factors remain poorly understood, in part because theories of internalization development differ considerably in their foci, and scholars have different views on factors that contribute to the development of internalization. Historically, most theories have focused either on differences in cognitive ability or differences in socialization practices to explain variation in internalization outcomes (Kohlberg, 1969; Maccoby & Martin, 1983; Piaget, 1932). Remarkably, the contributions of child temperament have been almost completely ignored (Kochanska, 1983).

A second and related issue concerns longitudinal continuity of internalized conduct. Children's willingness to regulate their own behavior in accordance with social norms without surveillance is one of the most important outcomes of successful socialization (Maccoby & Martin, 1983). Given that internalization of behavioral standards is so important for future social development, it is reasonable to expect that once developed its continuity would be essential. Longitudinal continuity of internalized conduct, however, remains complex and controversial despite its long history (Burton, 1984; Hartshorne & May, 1928; Rushton, Brainerd, & Pressley, 1983).

Goals

1. Examine the link between the temperamental quality of inhibitory control and internalization of conduct rules. Kochanska and associates (1996) found that toddlers who were higher on the temperament characteristic of inhibitory control were more likely to refrain from prohibited acts

even in the absence of surveillance. The present report examined the link between inhibitory control and internalization when the same children were ages 5 and 6.

2. Revisit the issue of longitudinal continuity of internalized conduct taking into account several recent methodological suggestions to obtain improved estimates of stability. First, we adopted an approach that utilized multiple, very well defined, concrete observational measures, all intending to reflect the construct of internalization (Cairns, 1979). Second, to assure maximum control over the influence of context, and therefore reduce the amount of "noise," we chose to use the laboratory setting (Radke-Yarrow, 1989; Smetana, 1989). Within this setting, the paradigms themselves were different and yet they were designed to be psychologically equivalent across times of assessment. Finally, we aggregated many observations into robust composite scores (Rushton et al., 1983). It was our hope that, given the use of well defined and essentially equivalent paradigms in a well controlled context, and the aggregation of multiple behavioral indices of internalization at different times of assessment, we would find evidence for continuity in children's internalization.

Methods

Participants

The participants were mother-child dyads taking part in a larger longitudinal investigation of moral development. There were three times of assessment:

	Time 1	Time 2	Time 3	Time 4
Total *N*	103	99	90	83
Boys	52	50	47	44
Girls	51	49	43	39
Mean age	32.86	46.01	60.52	65.89
SD	4.09	2.62	3.60	5.35

Procedures

At each time of assessment mother and child participated in a 2- to 3-hour session in the laboratory; all sessions were videotaped.

Measures of inhibitory control. Mothers rated their children's inhibitory control using the Inhibitory Control scale from the Child Behavior Questionnaire (CBQ, Rothbart, Ahadi, & Hershey, 1994). This scale is comprised of 13 items such as "[My child] can lower his/her voice when asked to do so" (alpha at Time 1, .78, at Time 2, .77, at Time 4, .77).

Measures of internalization. Children's internalization was observed using paradigms to assess the child's behavior while he or she was alone for 3 minutes playing a game that afforded an opportunity to cheat. Although the specific game was different at each time of assessment, all were impossible to win without cheating.

Time 2

- Animal Game: Identify three small cloth-covered stuffed animals by touching them with the tip of one finger of one hand without peeking.
- Bird Game: Locate "magic birds" (marked by a happy face sticker on the bottoms) from among 30 colorful birds. No more than two birds were to be examined.
- Dart Game, Throw five darts into a small ring that was several feet away without leaving the starting space or throwing any dart more than once.

Time 3

- Fish Game: Locate plastic goldfish among multiple plastic sea creatures in three small, cloth-covered jars. Only one selection per jar, without replacement, was to be made.

Time 4:

- Throwing Game: Throw five balls at a target that was several feet away (using non-dominant hand with back to target) without leaving the starting space or throwing any ball more than once.

The coding of the cheating paradigms was completed from videotapes. Following the standardization of all variables, multiple behaviors from these cheating game paradigms were aggregated into three composite scores at each time of assessment for each child: mean latency to transgress (alpha at Time 2, .78, at Time 3, .68, at Time 4, .68), mean extent of transgression (alpha at Time 2, .76, at Time 3, .81, at Time 4, .78), and mean extent of rule-compatible behavior (alpha at Time 2, .55; at both Time 3 and Time 4 this composite was comprised of one variable). Finally, these three composites were aggregated (with extent of transgression reversed) into one overall internalization composite for each time of assessment (alpha at Time 2, .83, at Time 3, .63, at Time 4, .78). Reliability (kappas) for the discrete codes ranged from .83 to .92. The percentage of judgments of latencies that were identical or differed by 1 second ranged from 92% to 99%.

Results and Discussion

Table 1

Contribution of Child Temperament to the Development of Internalization

	Inhibitory Control (CBQ)		
Internalization	Time 1	Time 2	Time 4
(Cheating Games)	(33 mo.)	(46 mo.)	(66 mo.)
Time 2 (N = 99)			
Latency to Transgress	.26**	.23*	--
Extent of Transgression	-.26**	-.23*	--
Extent of Rule-Compatible Behavior	.18+	.28**	--
Overall Composite	.26**	.28**	--
Time 3 (N = 90)			
Latency to Transgress	.07	.14	--
Extent of Transgression	-.10	-.14	--
Extent of Rule-Compatible Behavior	.19+	.13	--
Overall Composite	.16	.17+	--
Time 4 (N = 83)			
Latency to Transgress	.16	.11	.23*
Extent of Transgression	-.16	-.11	-.22*
Extent of Rule-Compatible Behavior	.13	.07	.09
Overall Composite	.17	.11	.19+

Note. Partial correlations controlling for child age at time of assessment.

+ $p < .10$. * $p < .05$. ** $p < .01$; all two-tailed.

Consistent with previous research by Kochanska et al. (1996), the results of this study indicate that child temperament may contribute significantly to the early development of internalization. This contribution, however, appeared more pronounced prior to age 4 and less important as children became older. Thus, children's inhibitory control at age 2 1/2 correlated significantly with their internalization behavior at age 4, but not at ages 5 or 6 (see Table 1).

Contemporaneous associations also emerged between mother-rated inhibitory control and observed measures of internalization at age 6 (see Table 1). These relations were of similar magnitude as those found at age 4, suggesting that whereas inhibitory control at toddler age is not a strong predictor of behavior at early school age, contemporaneous temperament is related to current levels of behavior. Although these associations were relatively weak, they do provide further evidence that inhibitory control may be linked with moral behavior.

One possible explanation for these finding is that inhibitory control, and temperament in general, may be directly linked with behavior early in development, but as development progresses, the influences of temperament becomes more indirect (Kochanska, 1993). That is, inhibitory control may be more important at the time of emerging organization of a behavioral system rather than later, when the system is in place.

Table 2

Longitudinal Continuity of Internalization

Internalization (Cheating Games)	Time of Assessment: Time 3 (60 mo.)	Time 4 (66 mo.)
Latency to Transgress		
Time 2	.26**	.30**
Time 3		.15
Extent of Transgression		
Time 2	.40***	.30**
Time 3		.19+
Extent of Rule-Compatible Behavior		
Time 2	.36***	.14
Time 3		.23*
Overall Composite		
Time 2	.40***	.32**
Time 3		.21+

+ $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$; all two-tailed.

We found that children's honest behavior is relatively stable from 4 to 6 years of age. Most relations were significant and all were in the predicted direction, indicating that children who committed transgressions at age 4 were more likely to transgress also at older ages. Accordingly, children who followed the rules at age 4 were more likely to follow the rules at older ages. Consistent with typical correlations of developmental continuity in the literature, these associations were moderate, ranging from .30 to .40.

Nonetheless, it is interesting to note that the correlations that reflect continuity of internalization between observations from the last two times of assessment only reached marginal significance. One reason for this could be a failure to aggregate enough. Whereas the Time 2 assessment included three games further aggregated into robust composites, which perhaps provided a more accurate index of internalization, there was only one paradigm at Time 3 and 4.

Conclusions

This study contributes to our understanding of the development of moral internalization in two ways. First, the findings from this study reaffirm and extend previous explorations of the link between temperament and internalization. This investigation provides evidence that the relatively straightforward association between inhibitory control and internalization found at toddler age is perhaps less direct as children's social experiences accrue (Bronfenbrenner. & Ceci, 1994). Clearly, more research is needed to understand the complex relation between child temperament and internalization. Second, this investigation provides evidence for the trait-like quality of internalization. Although many scholars recognize the central role of internalization in successful future social development, few have explored its developmental continuity. Given the reemergence of the topic of internalization in the developmental scene, this investigation seems timely.

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